

*Theragra chalcogramma*, the Alaskan Walleye Pollock, is a close relative of the Codfish. Found in northern Pacific waters at depths of up to 1000 feet. They are “demersal”, which means they live near, but not on the bottom. Pollock grow quickly, living on a diet of mostly krill, and small fish as they get older. The Alaskan Pollock are

Have you ever had the fried fish sandwich at a fast food restaurant? And have you ever wondered exactly what fish you might be enjoying in your sandwich? Well it more than likely was a Pollock. Pollock can be found in a number of sea food products, everything from fish sticks, to cat food, to imitation crab meat. This fish species is an exceptionally important source of food and the center of a multi-million dollar fishery.

Alaskan Pollock, as you may have guessed are found in and around Alaska, with three regions in particular, The Gulf of Alaska, the Aleutian Islands, and the Bering Sea. Here 1.5 million TONS of this fish are caught each year. With each fish weighing an average of 3 pounds, that’s about 1 billion fish annually! With so many fish being caught it became necessary to ensure that this fishery is sustainably managed.

Pollock live at depths of anywhere between 100 and 1000 feet. Large schools of Pollock are mainly found in the mid-water area of the water column, near the bottom. Although a bottom trawl on its own can be used to estimate Pollock population, scientists learned that the schools of Pollock they wish to sample live beyond the reach of bottom trawl gear. Luckily since Pollock have a something called a swim-bladder, another technique, called echolocation, can be used to find and estimate the population size of Pollock.

Why are Swim bladders important for using echolocation? Echolocation shoots sound waves through the water, these waves reflect (bounce) off of the fish's swim bladder, which is full of air, and go back to the receiver under the ship. Just like an echo you hear when you are in a large auditorium or a cave. That’s why this technique is called echo location. Researchers are able to recognize the “acoustic image” of Pollock, (not really a true image, but the sound of the echo bouncing off the fish) however this “image” is very similar to a few species of other fish found in the same habitat. So the only way to be sure is to bring the fish up using a sample trawl net. This is called an Echo Integration trawl; where first groups of fish are targeted with echo location then one of the specially designed sample nets is used to capture them.

Once sample Pollock are caught in a net, they’re all counted, right? Well not really. It’s very difficult to count that many fish. What researchers do instead is get a subsample! That’s right, they take a subsample of the main sample. First the net of Pollock is weighed then it is split into a few subsamples. The average age and weight of the Pollock are determined from the subsamples, then the total “Biomass” is estimated for the entire sample based on average size and weight. So, if one fish on average weighs 3 pounds, then in a 30,000 pound sample net there must be 10,000 fish worth of “Biomass.” Based on the size of the main sample taken in the trawl, the grand total of fish in a school seen with echolocation can then be estimated.

Estimating Pollock are challenging because they live at varying depths. Pollock move as the water temperature changes and as they get older tend to live closer to the bottom, where it is harder for nets to reach. In order to reach the part of the population to be sampled, the trawl net must pass down through hundreds of feet of water, possibly filled with other sea life. Since scientists know that Pollock congregate in schools that are 99% Pollock they know that once the net reaches the pollock, only the fish they want to sample will be brought back up. In order to do this researchers use a net that can be opened and closed at both ends. As the net goes down, the mouth and cod end of the net are left open, so unwanted fish pass right through. Once the net reaches the target depth where the sonar image showed the school of fish to be, the cod end is closed preventing the desired Pollock sample from escaping. When they have trawled for about 15 minutes the mouth of the net is closed to prevent capturing fish not within the sonar target image. This process attempts to sample only the echo images researchers are interested in.